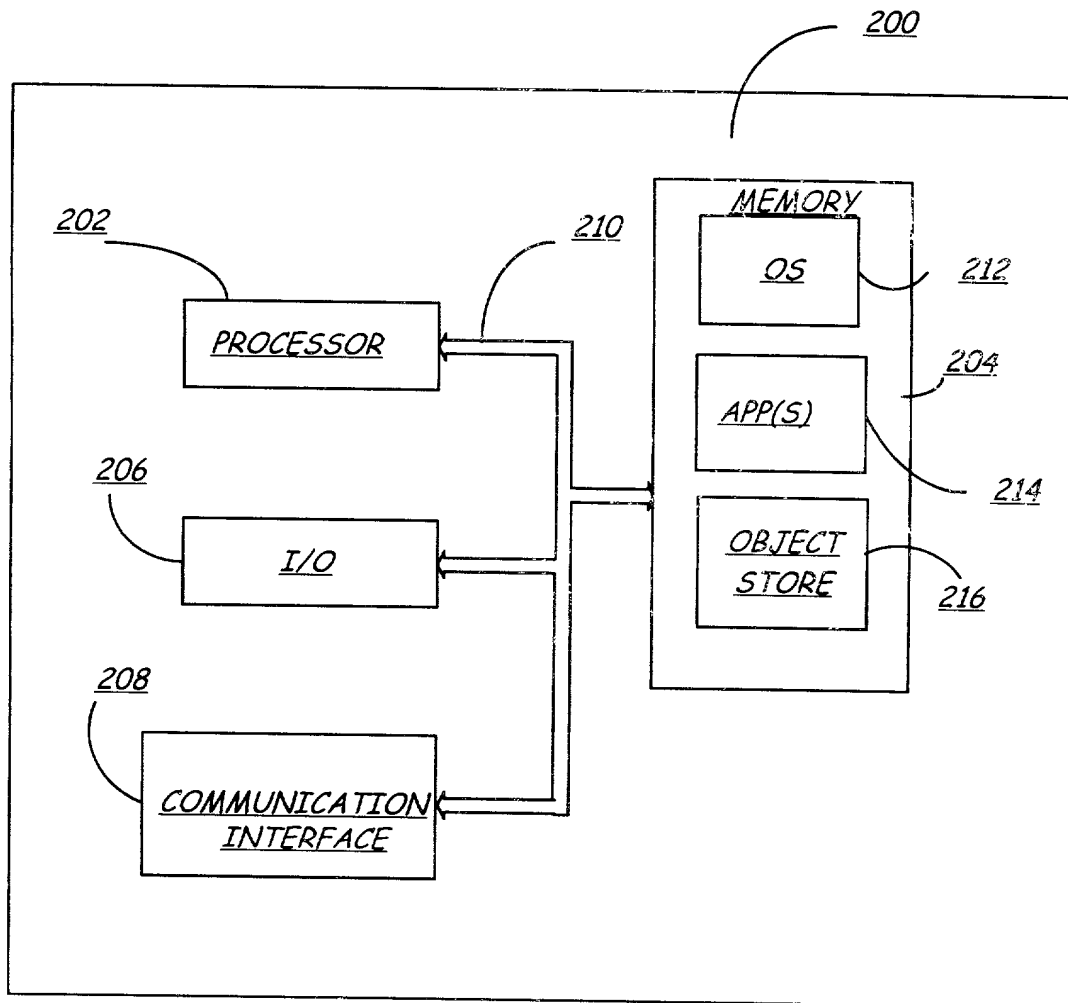


FIG. 1

**FIG. 2**

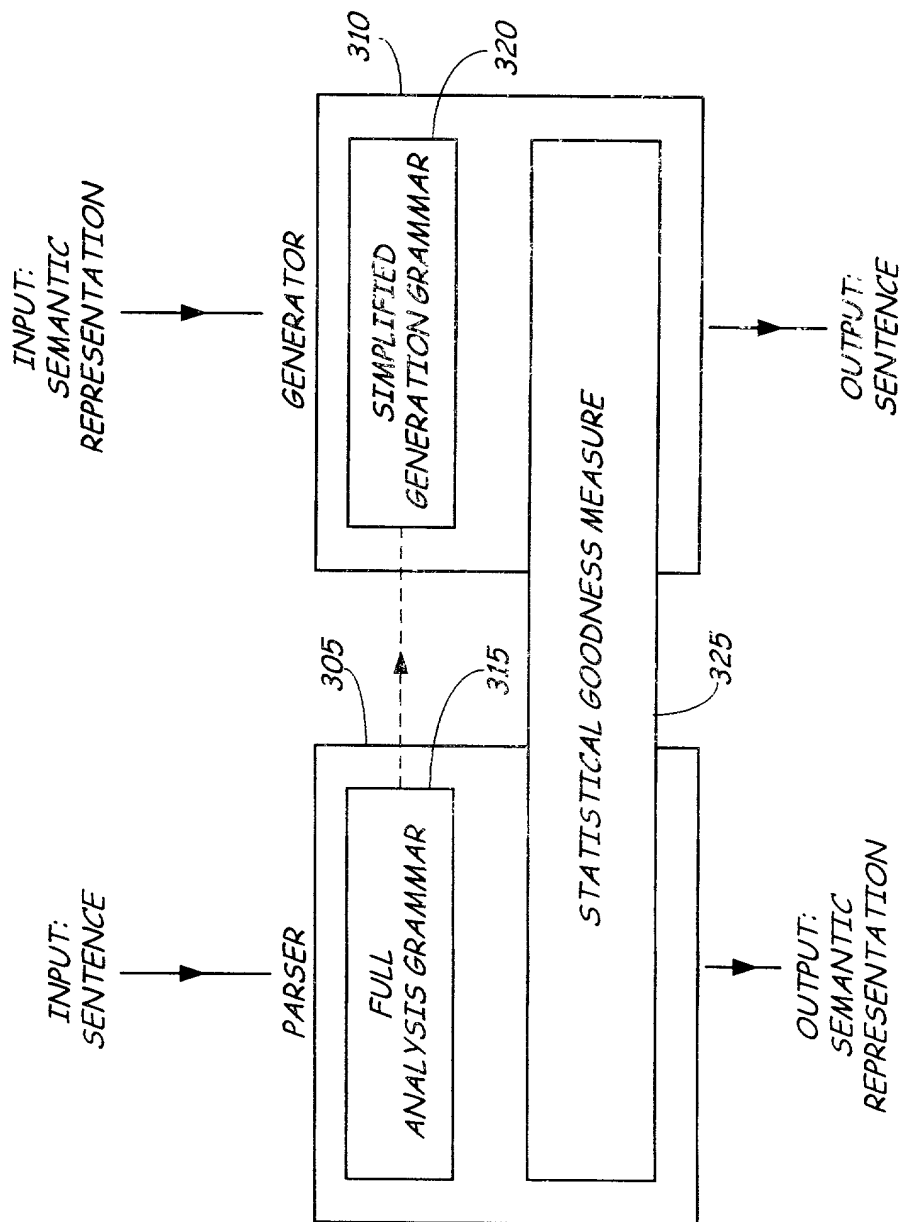


FIG. 3

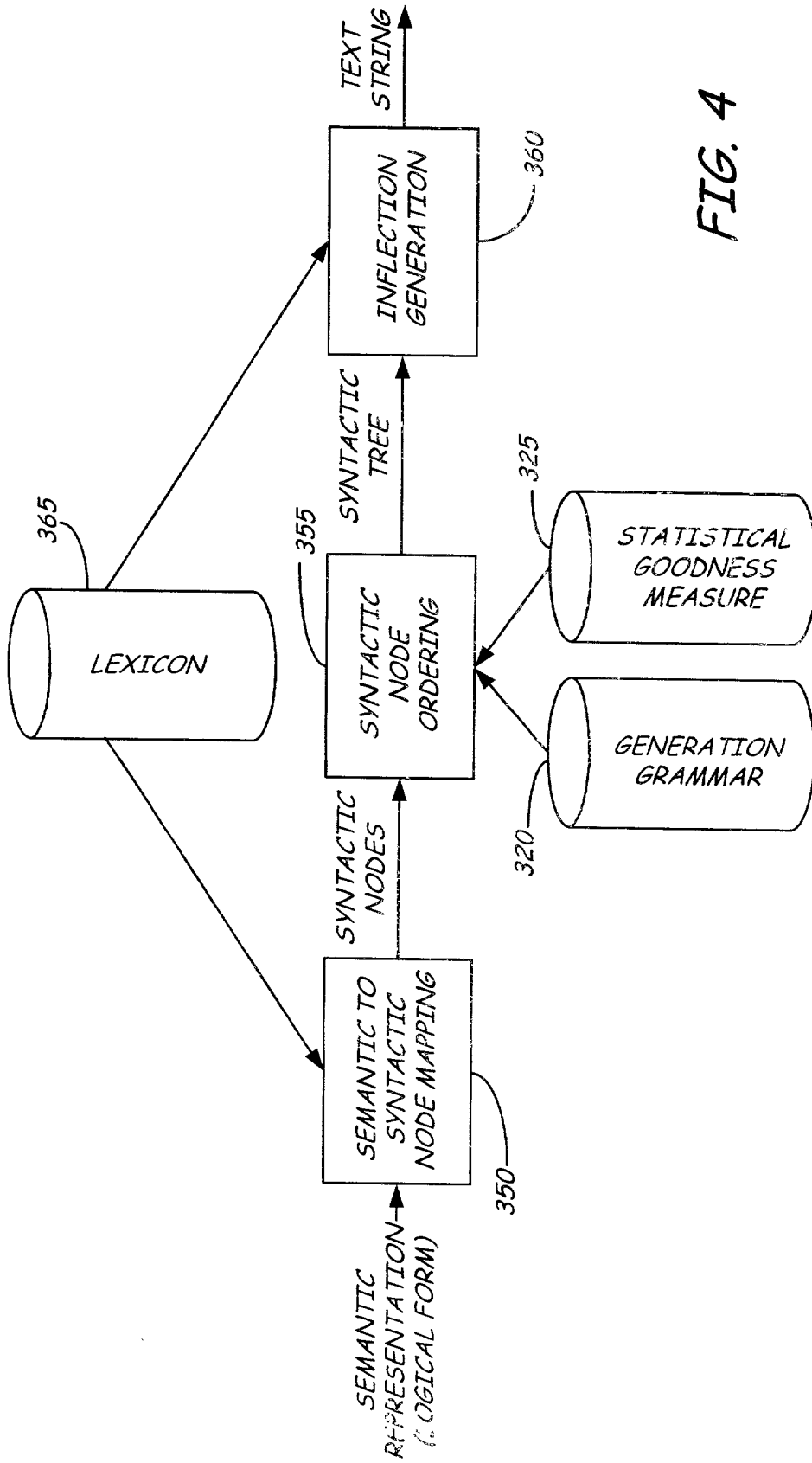


FIG. 4

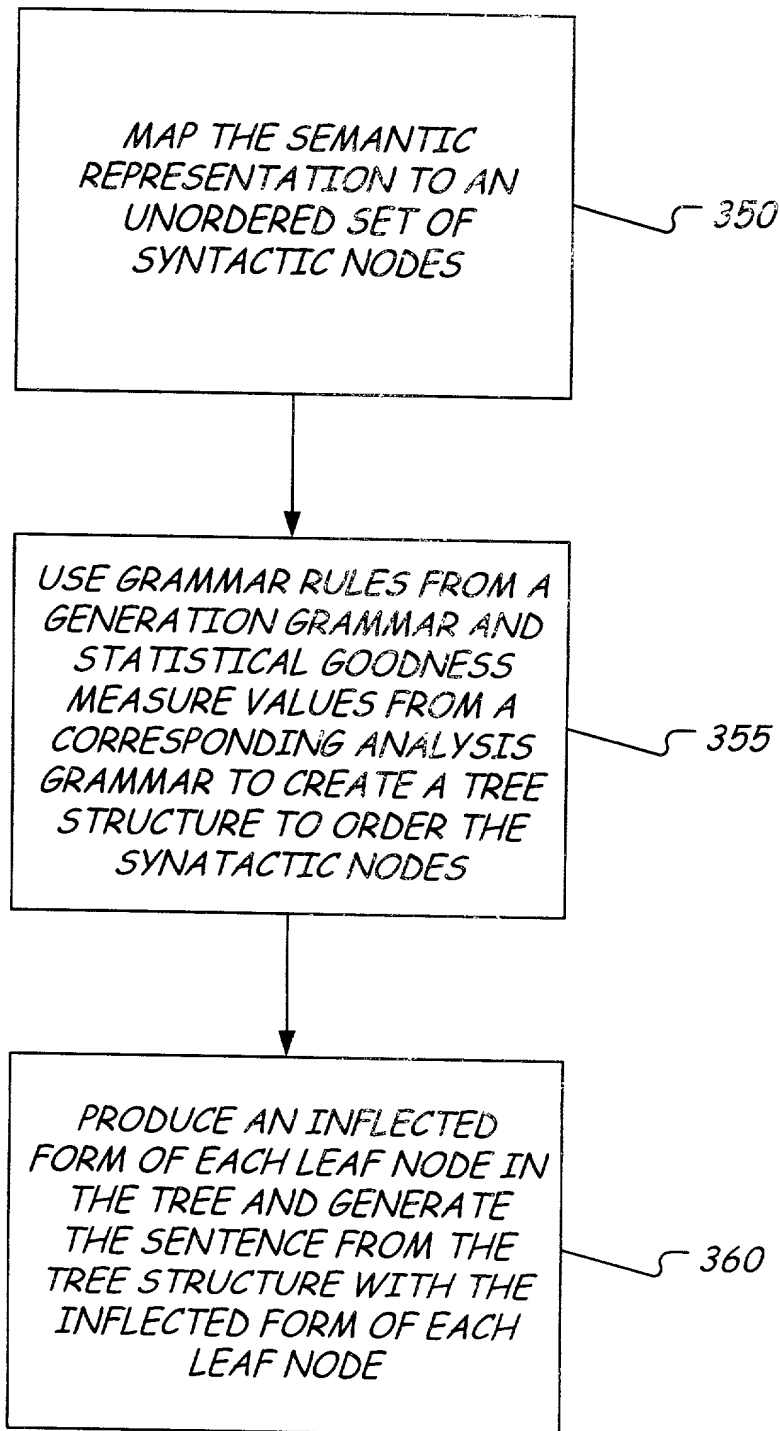


FIG. 5

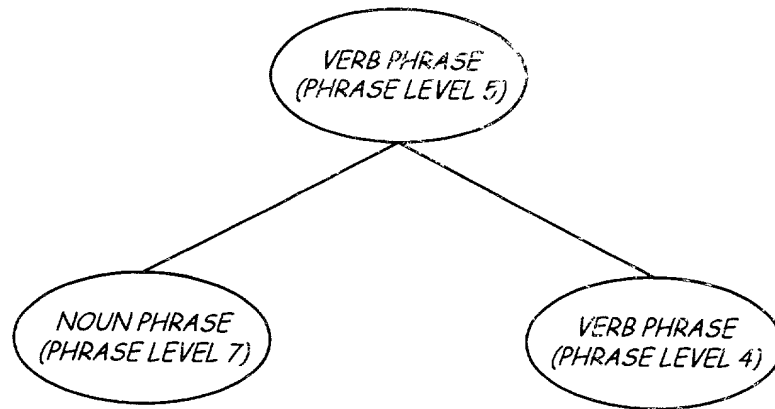


FIG. 6

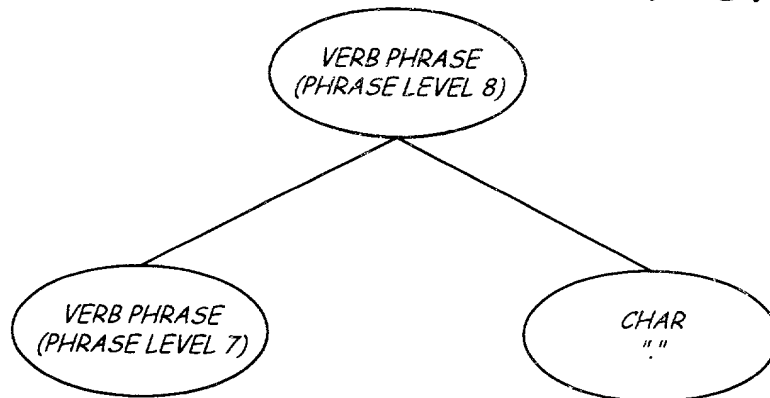


FIG. 8

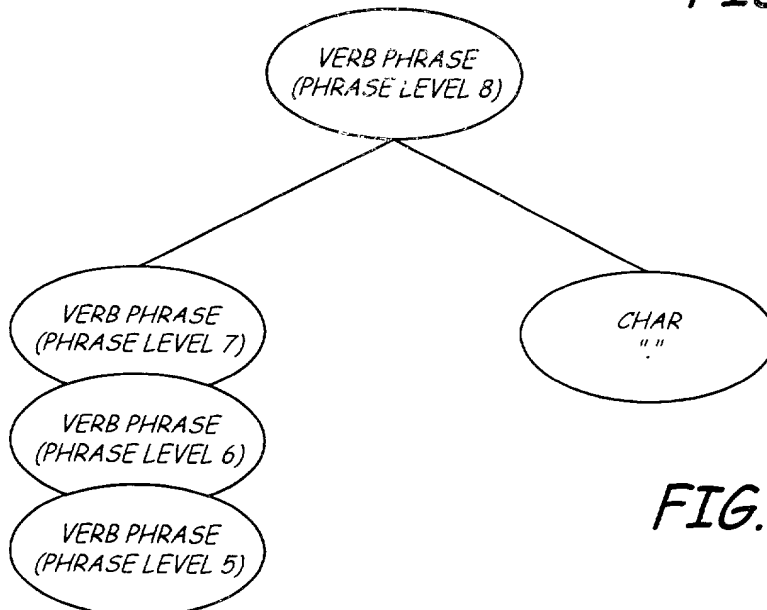


FIG. 9

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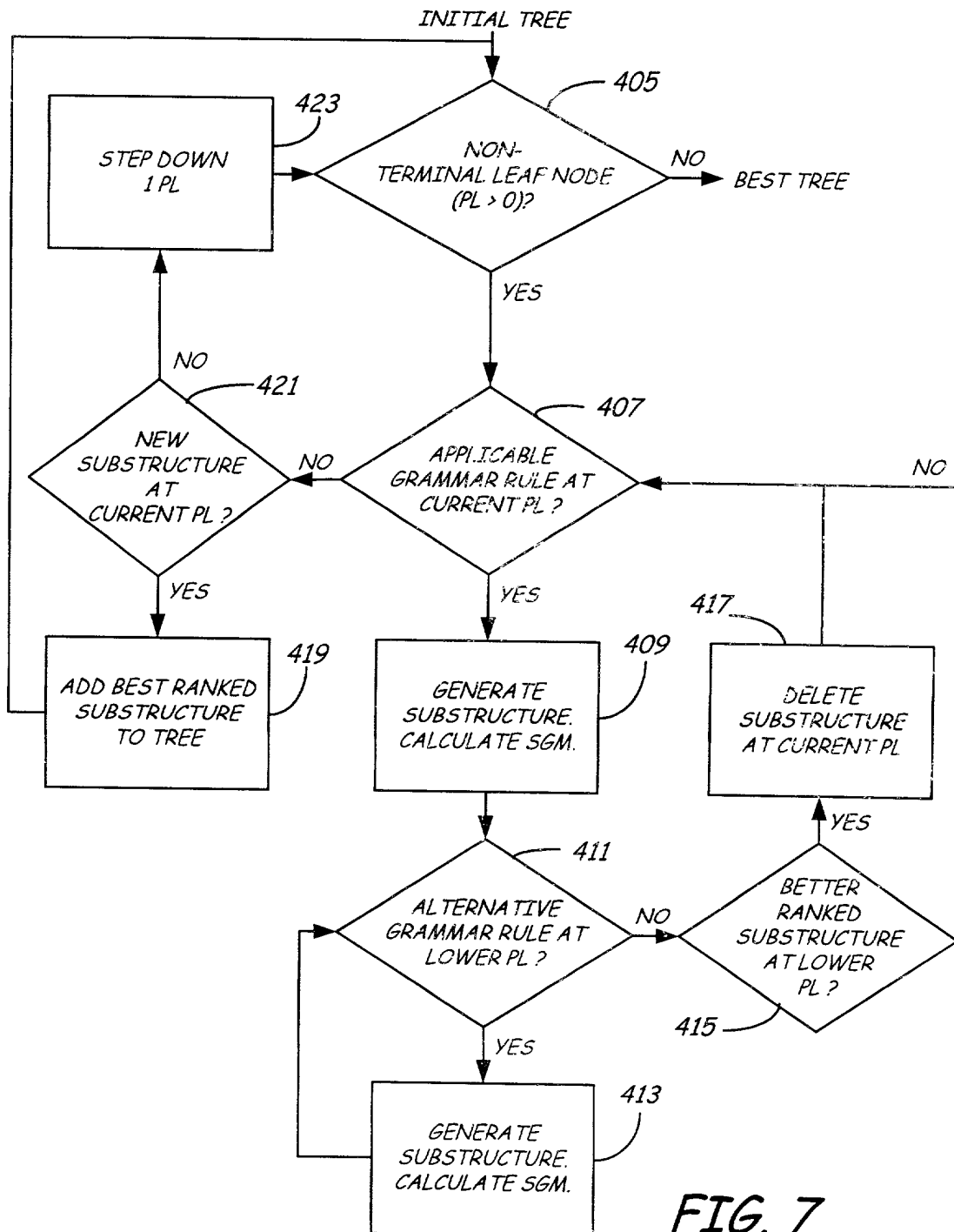


FIG. 7

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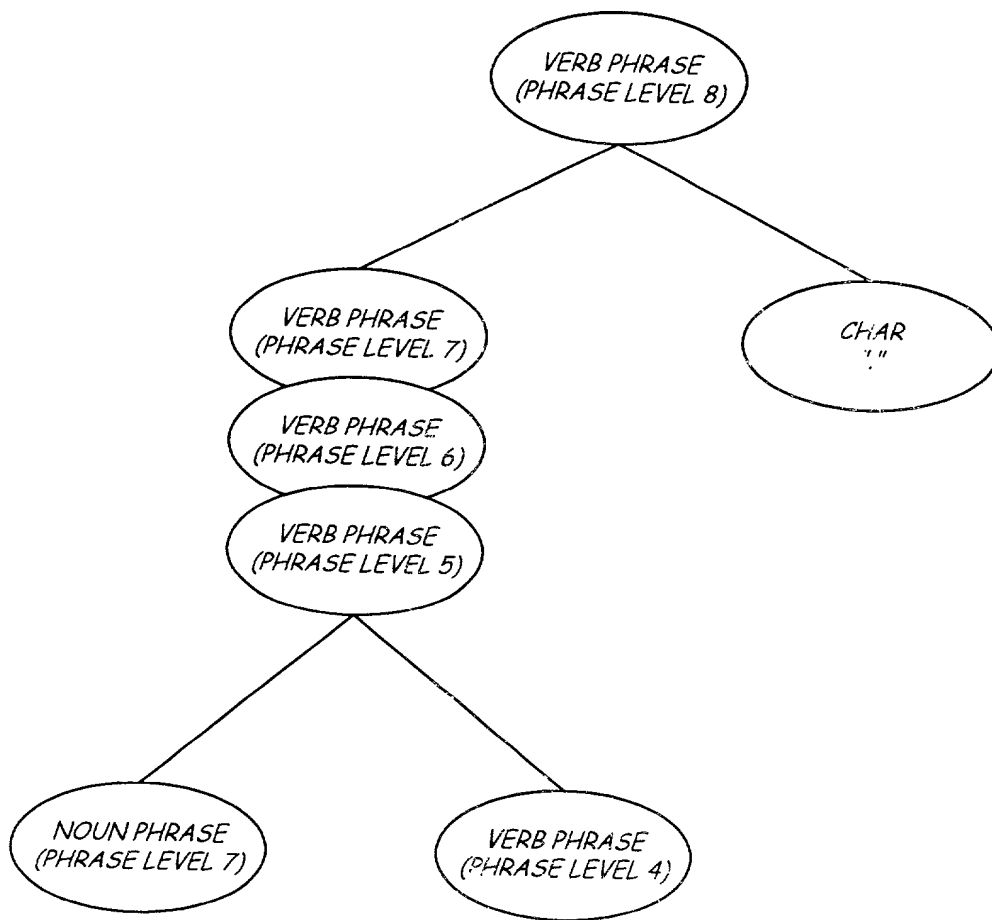


FIG. 10

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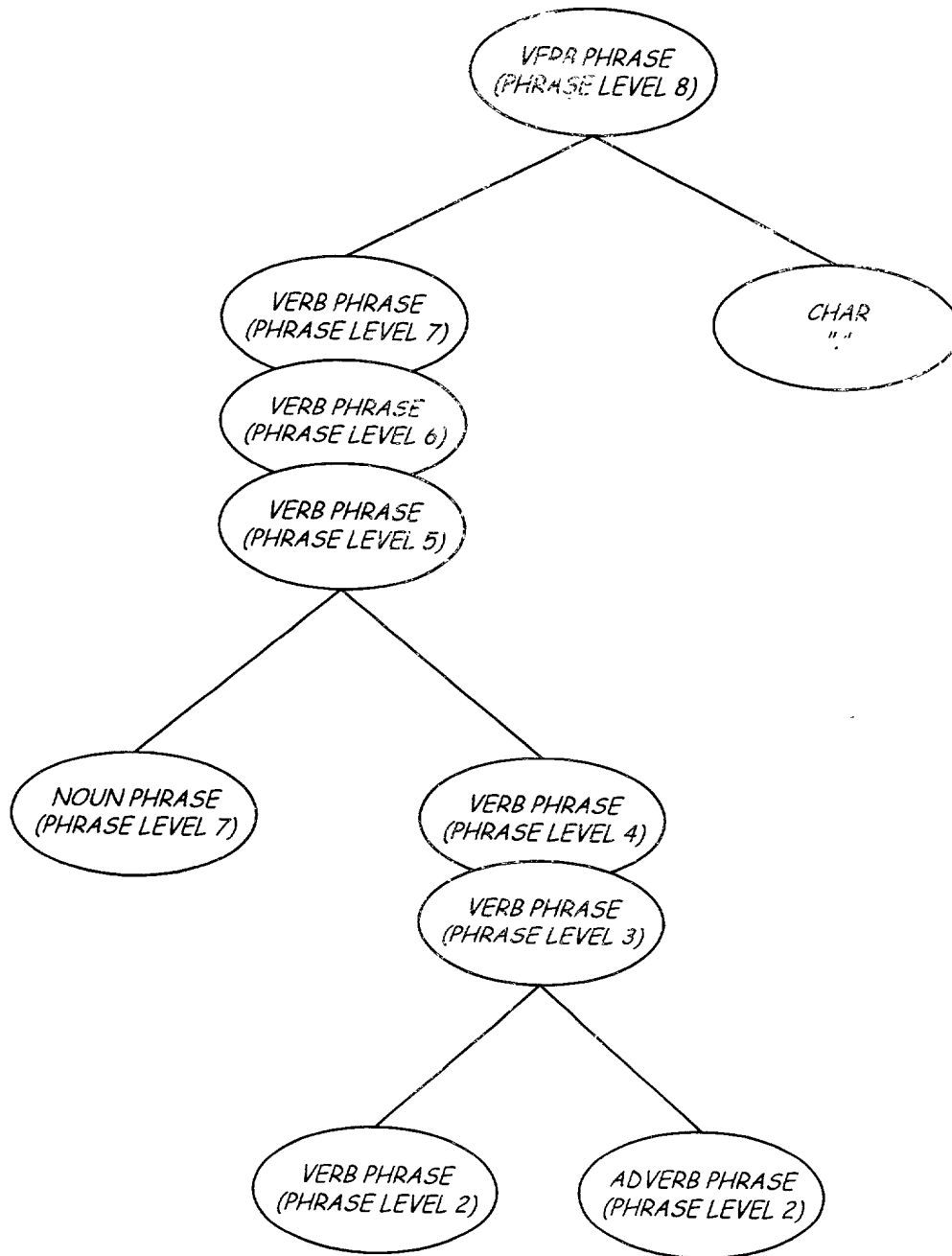


FIG. 11



FIG. 13



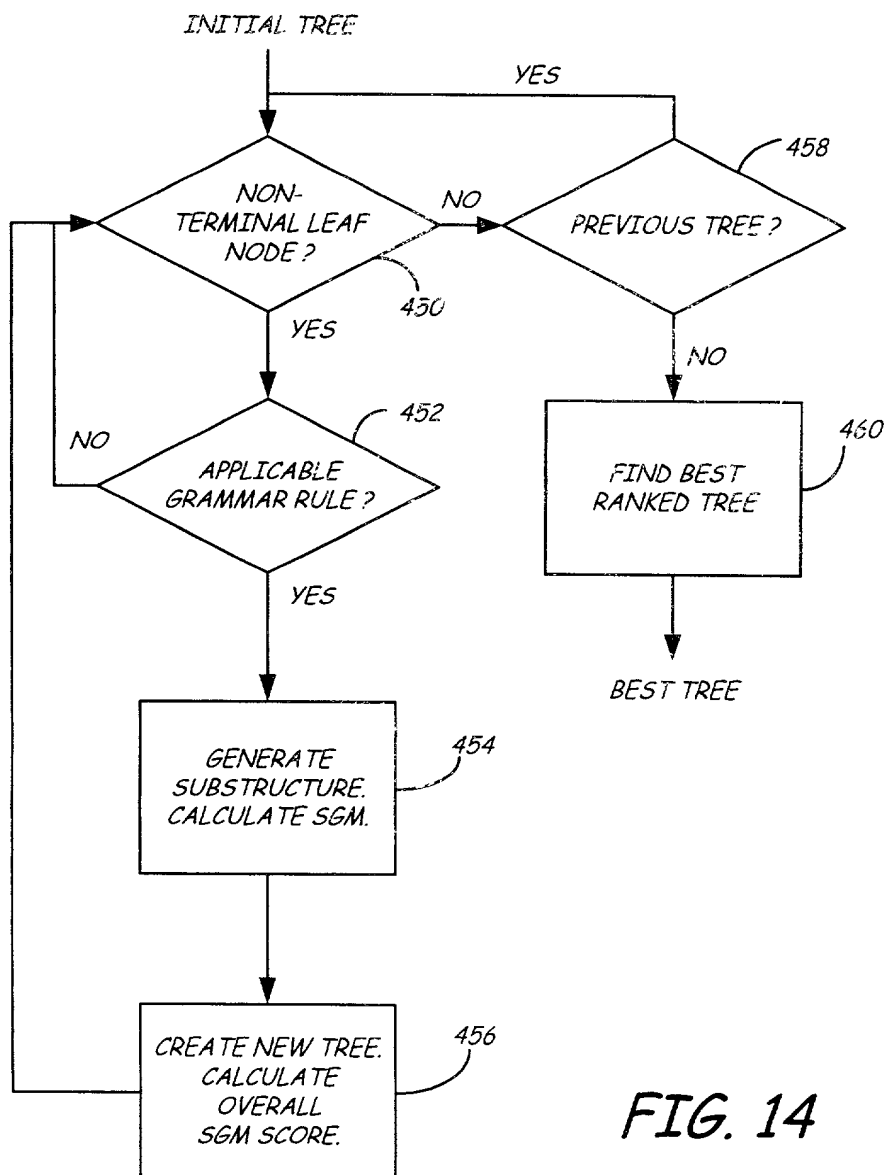


FIG. 14



Rule Name	Rule	Description (and an example)
VERBtoVP	VP → VERB	Promote a verb into a verb phrase
PredAdj	VP → VP AJP	Add on an adjective. "It has been <u>found effective</u> "
VPwNPrl	VP → VP NP	Add direct object to a VP "I <u>hit Bill</u> "
Perfect	VP → VP VP	Adds the VP "have" to a VP "Joe <u>had gone</u> "
SubjPQuant	VP → NP VP	Add quantifiers to the VP like "all", "both", ... "The children have <u>all gone</u> "
VPwNPrl	VP → NP VP	Add noun subject to a VP " <u>John jumped</u> ."
SubjectAJP	VP → AJP VP	Add AJP subject to a VP " <u>More surprising</u> is his attitude"
InvertAJPwS	VP → AJP VP	Add final modifier, AJP, to the left of a VP " <u>More remarkable still</u> , <u>he went</u> "
Topicalization	VP → NP VP	Add object of VP, NP, to the left of a VP " <u>A better-looking man</u> I have not seen"

FIG. 16

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FIG. 17A

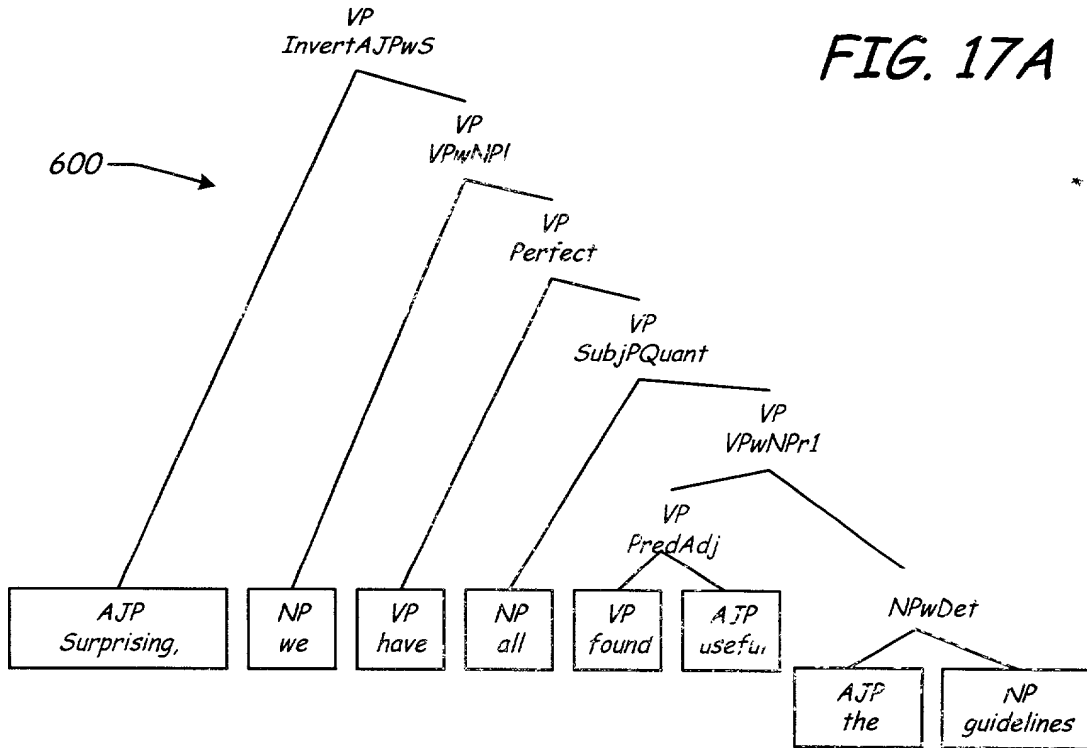
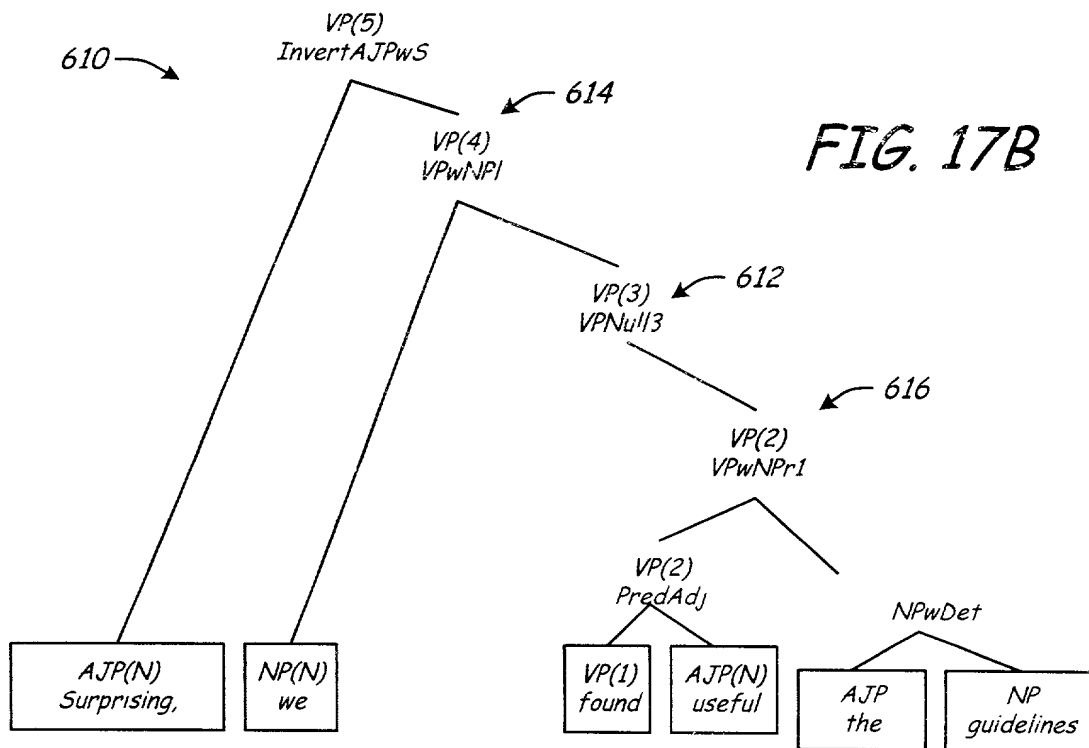


FIG. 17B



Phrase Level	Rule Name	Rule	Level Description
1	VERBtoVP	VP(1) → VERB(PL_Verb_Max)	Create a VP
	PredAdj	VP(2) → VP(1) AJP(PL_AJP_Max)	
	VPwNP1	VP(2) → VP(1) NP(PL_AJP_Max)	Add post modifiers
	VPNull2	VP(2) → VP(1)	
3	Perfect	VP(3) → VP(1) VP(2,3)	
	SubjpQuant	VP(3) → NP(PL_NP_Max) VP(2,3)	Add "have" and quantifiers
	VPNull3	VP(3) → VP(2)	
	VPwNPI	VP(4) → NP(PL_NP_Max) VP(3)	
4	SubjectAJP	VP(4) → AJP(PL_AJP_Max) VP(3)	Add subject
	VPNull4	VP(4) → VP(3)	
	InvertAJPwS	VP(5) → AJP(PL_AJP_Max) VP(4)	
	Topicalization	VP(5) → NP(PL_NP_Max) VP(4)	Add modifiers to VPs that have a subject
5	VPNull5	VP(5) → VP(4)	

FIG. 18

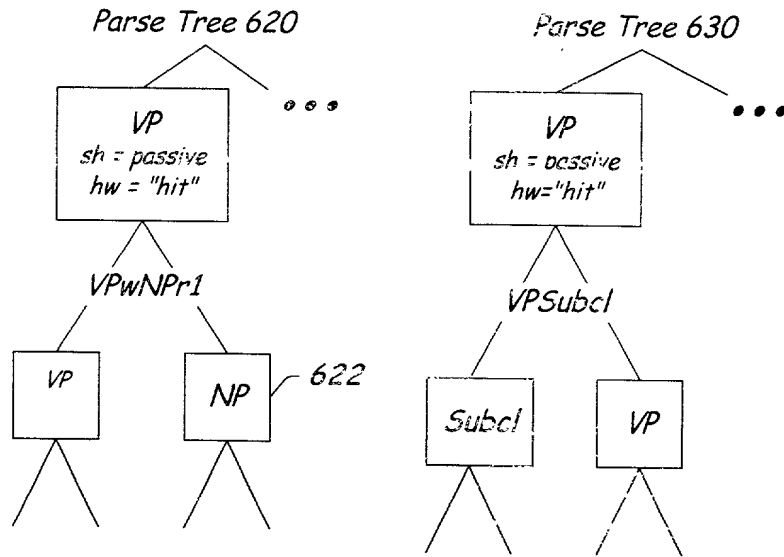


FIG. 19

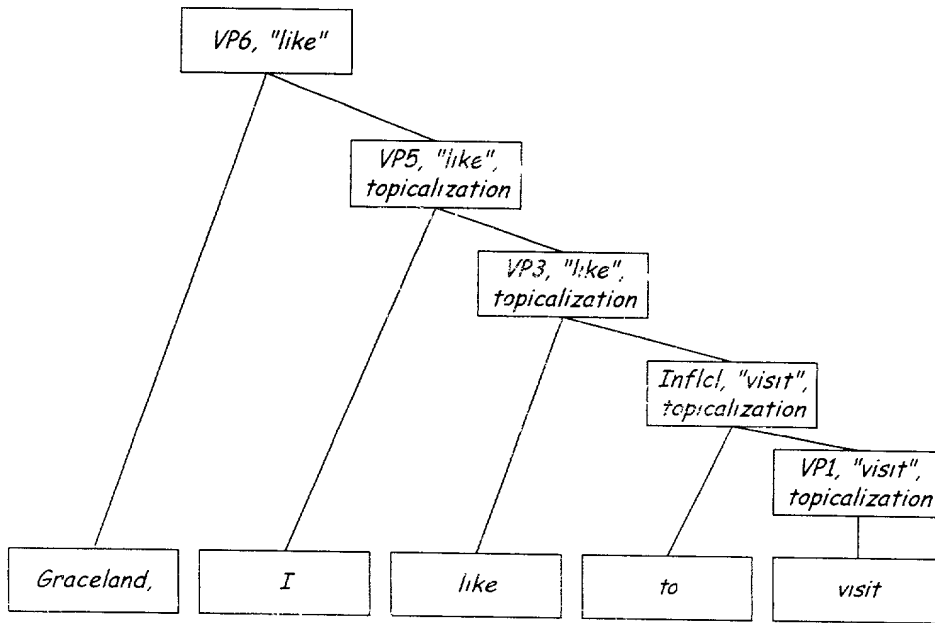


FIG. 20

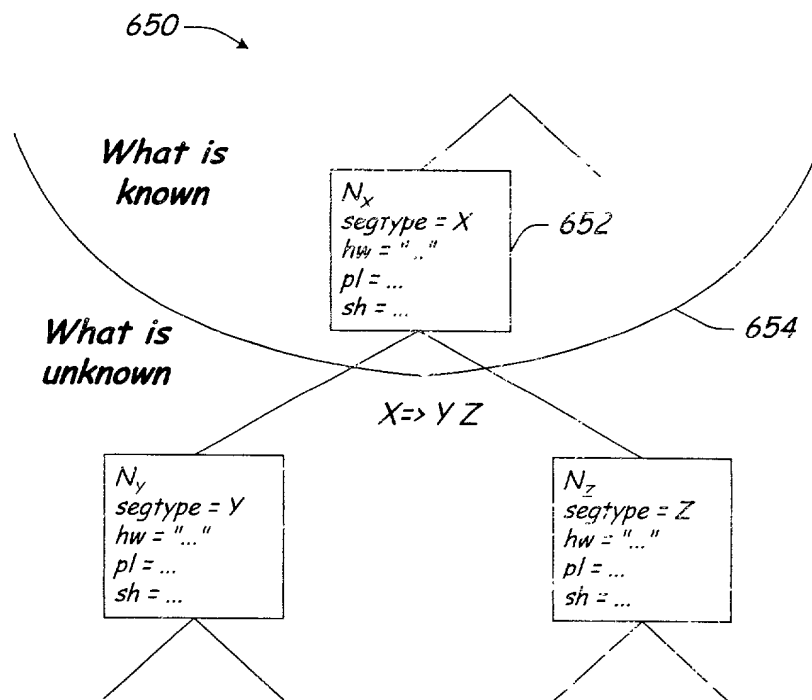


FIG. 21